

DRAFT

COMMONWEALTH OF VIRGINIA



Information Technology Resource Management Standard

**PROJECT MANAGER SELECTION
AND TRAINING**

Virginia Information Technologies Agency

DRAFT

DRAFT

Preface

Publication Designation

COV ITRM Standard GOV2003-02.3

Subject

Project Manager Selection and Training

Effective Date

August 20, 2003

Supersedes

None

Scheduled VITA Review

One (1) year from the effective date, then every two years thereafter.

Authority

Code of Virginia, § 2.2-2002
(Powers of the CIO)

Code of Virginia, § 2.2-2005
(Additional Powers of VITA)

Code of Virginia, § 2.2-2012
(Powers and duties of the Division of Project Management)

Code of Virginia, §2.2-2013; §2.2-2014; §2.2-2015; §2.2-2016
(Project planning approval; Project development approval; Procurement approval for major information technology projects; Project oversight)

Code of Virginia, §2.2-2453
(Powers and duties of the Information Technology Investment Board; the "Board")

Scope

This guideline is applicable to all State agencies and institutions of higher education

(hereinafter collectively referred to as "agencies") and to individuals providing management of information technology projects in the Commonwealth directly or under contract. Local government entities are encouraged to consider the use of this standard for their work.

Purpose

Establish the minimum qualifications and training standards for all project managers of Commonwealth information technology (IT) projects.

General Responsibilities (Italics indicate Code of Virginia requirements)

Commonwealth of Virginia Information Technology Investment Board

The Information Technology Investment Board is assigned the following general technology management responsibilities:

- *Approve strategies, standards, and priorities recommended by the Chief Information Officer for the use of information technology for state agencies in the executive branch of state government;*
- *Approve or disapprove the development of all major information technology projects as defined in § 2.2-2001.*

Commonwealth of Virginia Chief Information Officer (CIO)

The CIO is assigned the following general technology management responsibilities:

- *Direct the formulation and promulgation of policies, guidelines, standards, and specifications for the purchase, development, and maintenance of information technology for state agencies, including, but not limited to, those (i) required to support state and local government exchange, acquisition, storage, use, sharing, and distribution of geographic or base map data and related technologies, (ii) concerned with the development of electronic*

DRAFT

transactions including the use of electronic signatures as provided in § 59.1-496, and (iii) necessary to support a unified approach to information technology across the totality of state government, thereby assuring that the citizens and businesses of the Commonwealth receive the greatest possible security, value, and convenience from investments made in technology.

- *Direct the development of policies and procedures for the effective management of technology investments throughout their entire life cycle, including, but not limited to, project definition, procurement, development, implementation, operation, performance evaluation, and enhancement or retirement.*
- *Establish minimum qualifications and training standards for project managers.*
- *Approve the project manager selected to manage major information technology projects as defined in the Code of Virginia, section § 2.2-2001.*

Virginia Information Technologies Agency

Additional powers of VITA:

- *Develop and adopt policies, standards, and guidelines for managing information technology by state agencies and institutions.*

The Division (of Project Management) shall have the power and duty to:

- *Provide ongoing assistance and support to state agencies and public institutions of higher education in the development of information technology projects;*
- *Establish a program providing cost-effective training to agency project managers.*

Executive Branch Secretaries and State Agencies (as defined in the Code of Virginia § 2.2-2427)

Executive Branch Secretaries and State Agencies are required to:

- Comply with the policies, standards, and guidelines for the management of information technology resources in the Commonwealth.
- Provide financial and other resources required for project managers to test or attend training as defined in this standard.
- Provide information on project manager experience as required by this standard.

Related COV ITRM Policies, Standards, and Guidelines

Technology Management Policy COV ITRM Policy GOV 2003-02.1

Technology Management Glossary COV ITRM Standard GOV 2003-02.1

Model Standard for Large Scope Projects COV ITRM Guideline 91-3

Model Standard for Small Scope Projects COV ITRM Guideline 91-4

Model Standard for Maintenance & Enhancement Projects COV ITRM Guideline 91-5

Commonwealth Project Management Guideline COV ITRM Guideline 2003-02.2

Contact Information

For information or clarification contact the Virginia Information Technologies Agency Project Management Division staff at 804-225-3622.

DRAFT

TABLE OF CONTENTS

PREFACE.....	2
TABLE OF CONTENTS	4
SECTION 1 – INTRODUCTION.....	5
PURPOSE	5
GENERAL APPROACH.....	5
SECTION 2 – PROJECT MANAGER TESTING AND TRAINING.....	6
OVERVIEW	6
TESTING	6
TRAINING.....	6
MANDATORY COMMONWEALTH PM OVERVIEW TRAINING	7
CORE PROCESSES KNOWLEDGE STANDARDS	7
FACILITATING PROCESSES KNOWLEDGE STANDARDS	9
ADVANCED PROJECT MANAGER TRAINING.....	11
SECTION 3 - PROJECT MANAGER QUALIFICATIONS.....	12
OVERVIEW	12
QUALIFICATION STANDARD FOR NON-MAJOR IT PROJECTS WITH A TOTAL COST LESS THAN \$100,000.....	12
QUALIFICATION STANDARD FOR NON-MAJOR IT PROJECTS WITH A TOTAL COST GREATER THAN OR EQUAL TO \$100,000 AND LESS THAN \$1 MILLION.	12
QUALIFICATION STANDARD FOR MAJOR IT PROJECTS	13
SECTION 4 - PROJECT MANAGER MENTORING PROGRAM.....	14
OVERVIEW	14
VIRGINIA INFORMATION TECHNOLOGIES AGENCY RESPONSIBILITIES	14
PROJECT MENTOR QUALIFICATIONS	14
SECTION 5 - PROJECT MANAGER QUALIFICATION AND SELECTION PROCESS.....	15
OVERVIEW	15
QUALIFICATION PROCESS DESCRIPTION	15
SECTION 6 - PROJECT MANAGER SELECTION AND TRAINING STANDARD IMPLEMENTATION SCHEDULE	18

DRAFT

SECTION 1 – INTRODUCTION

Purpose

The Project Manager (PM) Selection and Training standard establishes the minimum qualifications and training standards for project managers of Commonwealth of Virginia information technology (IT) projects.

General Approach

The *Code of Virginia* requires the Chief Information Officer of the Commonwealth of Virginia to establish standards for the qualification and training of IT project managers. This standard has five components that accomplish this requirement. The components include: PM Testing and Training; PM Qualifications; PM Mentoring; a Qualification and Selection Process; and, the PM Qualification and Selection Process Implementation Schedule.

Commonwealth of Virginia IT project managers are qualified for specific projects within project categories: Non-major projects costing less than \$100,000; Non-major Projects with a total cost greater than or equal to \$100,000 and less than \$1 million; and, Major IT Projects. In the Commonwealth of Virginia, Major IT Projects are information technology projects that: are mission critical; have statewide application; or, have a total estimated cost of more than \$1 million. A project manager is not automatically qualified or certified for every project within a specific category of projects. To be qualified to manage a specific project, the project manager candidate must meet the qualification requirements for the project category and have the appropriate experience necessary for the specific project.

The Commonwealth of Virginia does not “Certify” project managers. Training attended, to acquire the knowledge necessary to qualify for Commonwealth project manager assignments, may result in certification by other organizations and institutions outside of the Commonwealth. Project managers are encouraged to seek such certification when the opportunity is available. The Virginia Information Technologies Agency (VITA) is responsible for establishing and managing testing and training for Commonwealth IT project managers.

DRAFT

SECTION 2 – PROJECT MANAGER TESTING AND TRAINING

Overview

This section defines the requirements for testing, mandatory project management training, and required project management knowledge. Training providers, training organizations, and evaluators will use these standards to develop or identify training that enables the project manager candidate to successfully pass mandatory qualification tests. All project managers of Commonwealth IT projects must pass knowledge tests to qualify as project manager candidates for specific projects as outlined in this standard (Section 3). Project manager candidates must first register in the program by completing a registration form on the Project Manager Development Web page (Section 5).

Testing

There are two PM qualification tests, the Core Processes Test and the Facilitating Processes Test. Test questions are derived from the training standards and address required project management knowledge for one or more of the topic areas within the processes tested.

The tests are provided over the Internet using a secure on-line testing process. Fees associated with testing are paid by the project manager candidate's agency or company as appropriate. Project manager candidates register to take the test online or telephonically via a link to the testing registrar provided on the Project Manager Development Web page. Project manager candidates are required to take the exam while at their workplace and to read and agree to an honor code before being allowed to access the test.

The project manager candidates must score at least 80% of the points allocated in each topic area and an 80% overall score to meet the qualification standard. If a project manager candidate fails to achieve 80% in a topic area, the project manager candidate is required to retake that portion of the test. The project manager candidate will be allowed one retake before being required to attend the appropriate training. After the project manager candidate has attended training, they are allowed to retake those portions of the test needed to qualify.

Training

In general, there are two types of training, mandatory training and optional training. Mandatory training is required for all and is directed toward Commonwealth specific information. Optional training is taken as necessary to acquire knowledge or develop skills that the project manager candidate needs to pass the knowledge test or to manage a unique project. Training is developed and provided by training partners, including private companies and other organizations from both the public and private sector. The Virginia Information Technologies Agency reviews training offered by training partners, identifies

DRAFT

courses that meet the training objectives found in this standard, and communicates, through the Project Manager Development Web page, a list of training partners whose courses meet the knowledge standards found in this document and provide a cost effective government or discount rate. It is the responsibility of each project manager candidate to enroll in training. It is the responsibility of the agency, institution, individual, or private company to provide the appropriate funding and administrative support.

Mandatory Commonwealth PM Overview Training

All project managers and project sponsors of Commonwealth IT projects must attend Commonwealth PM Overview Training. Virginia Information Technologies Agency will coordinate or provide this training at least annually. There is no pre-qualification test that substitutes for attendance at mandatory training.

Commonwealth PM Overview Training addresses the Commonwealth Technology Management Policy, the Commonwealth Project Management Guideline, and the Project Manager Selection and Training Standard.

Core Processes Knowledge Standards

All project managers who manage IT projects will qualify by passing a qualification test based on the knowledge standards outlined below. The Virginia Information Technologies Agency will establish, coordinate, or identify training that meets the knowledge standards specified for each topic identified in the Core Processes.

Project Initiation and Solution Analysis

The project manager candidate will be able to: apply the Commonwealth methodology for initiation of projects; analyze a business problem, develop multiple viable solutions, analyze the solutions, compare solutions, and recommend a specific solution; prepare a project proposal (business case) and project charter. The project manager candidate will understand how the project charter is used and how it impacts the project.

Cost Benefit, Earned Value, and Return on Investment Analysis

The project manager candidate will be able to: conduct financial analysis of projects using cost benefit, earned value, and return on investment calculations; select an appropriate technique for calculating cost benefit, earned value, and return on investment; prepare reports or documents providing the data, conclusions, and recommendations.

DRAFT

Scope Definition

Given a business problem, business objective, project description, project solution, and project constraints, the project manager candidate will be able to compose a statement that describes the project scope. At the minimum, the scope statement will address the “who, what, where, when, and why” of a project and will define the sum of the products and services provided by a project.

Work Breakdown Structure

The project manager candidate will be able to develop and appropriately display a three (3) level Work Breakdown Structure. The project manager candidate will understand how to use the Work Breakdown Structure to define the project and how it relates to the development of resource, schedule, budget, and performance plans.

Organizational Breakdown Structure

The project manager candidate will be able to develop and appropriately display an organization breakdown structure (OBS). The project manager candidate will understand how to use the OBS to define the task and resources assigned to the project team and its components.

Activity Definition and Sequencing

Given a Work Breakdown Structure, the project manager candidate will be able to define activities and tasks and sequence them for a given project.

Resource Planning

Given the Organizational Breakdown Structure or Work Breakdown Structure, the project manager candidate will be able to identify needed resources and develop a Resource Plan for the project. The resource plan must identify who possesses the skills required to perform the work (labor resources), as well as the tools, equipment, facilities, and other resources needed by the project team.

Schedule Development

Given a Work Breakdown Structure, Activity Definition and Sequencing Worksheet, and Resource Plan, the project manager candidate will be able to develop a project schedule. The project manager candidate will understand the impact of additional planning (such as risk planning) on the schedule and how to modify and adjust the schedule during the remainder of the project planning effort. The project manager candidate will understand what it means to “baseline a schedule.”

DRAFT

Budget Planning

Given a Project Charter, Project Proposal, Project Schedule, and Resource Plan, the project manager candidate will be able to develop a project budget. The project manager candidate will understand the impact of additional planning (such as risk planning) on the project budget and how to modify and adjust the budget plan during the remainder of the project planning effort. The project manager candidate will understand what it means to “baseline the budget.”

Performance Planning

Given a Project Charter, Project Proposal, Resource Plan, Project Schedule, and Project Budget the project manager candidate will be able to develop a project performance plan. The project manager candidate will be able to identify what will be measured, how the measurements will be taken or calculated, when the measurements will be made, and what standard will be used to define successful accomplishment. The project manager candidate will also be able to define deliverables and establish appropriate acceptance criteria.

Facilitating Processes Knowledge Standards

All project managers, who manage Commonwealth Major and Non-major IT Projects with a total cost greater than or equal to \$100,000 will qualify by passing a qualification test based on the knowledge standards outlined below. The Virginia Information Technologies Agency will establish, coordinate, or identify training that meets knowledge standards specified for each topic identified in the Facilitating Processes.

Risk Planning

The project manager candidate will be able to: identify and evaluate risk using a standard risk analysis process; prioritize risk based on probability of occurrence and impact; develop mitigation strategies or identify changes that can be made in the project plan to decrease the probability of risk occurrence or impact; estimate risk mitigation cost, and develop input to the project budget related to mitigation or contingency funding.

Communications Planning

The project manager candidate will be able to conduct an analysis of stakeholder information needs and develop a plan to meet the information needs of stakeholders during the execution phase of the project. The communications plan must include how information is obtained, how information is presented, how information is delivered, and who will perform specific communications tasks. The communications plan must also address disposition and retention of project records.

DRAFT

Quality Management Planning

The project manager candidate will understand: the purpose and principles of quality management; the meaning and differences between product testing, project audits, and Independent Verification and Validation. The project manager candidate will be able to develop a quality management plan that provides an overview, schedule, responsibilities, and resources for product testing, project audits, and Independent Verification and Validation.

Procurement Planning

The project manager candidate will be able to: identify the different methods for procuring products, goods, and services; identify the most appropriate method for procuring a given product, good, or service; develop a schedule of procurement activities.

Change Control and Configuration Management

The project manager candidate will understand the purpose of Change Control and Configuration Management. The project manager candidate will be able to identify items that should be placed under change control or configuration management and develop a plan for managing and documenting change. The plan will include a defined process for change control and configuration management, item identification, naming and version conventions, storage and handling, and individual responsibilities.

Project Execution and Control

The project manager candidate will understand the responsibilities of a project manager during project execution. The project manager candidate will identify key control issues and the techniques employed to manage them. The project manager candidate will be able to use typical measurements and calculations to evaluate project progress.

Reports and Project Dashboard

The project manager candidate will be able to develop and present a project status report appropriate for senior management and other stakeholders. The project manager candidate will be able to use the Commonwealth Major IT Project Status Report Dashboard to update project information and provide status reports.

DRAFT

Project Closeout

The project manager candidate will be able to: identify tasks associated with project closeout; develop a schedule and plans that support project closeout; collect and document lessons learned; develop a project closeout report; conduct a post implementation review; and, provide a report detailing findings from the post implementation review.

Advanced Project Manager Training

The continued training and professional development of project managers is encouraged. Major projects often require the development of advanced skills in specific areas. The following topics are areas of concentration recommended for advanced project manager training.

- Advanced Risk Management
- Advanced Project Metrics and Statistical Analysis
- Systems Development
- Enterprise Architecture
- Financial Management for Major Projects and Programs
- Organizational Dynamics and Organizational Change Management
- Strategic Planning

DRAFT

SECTION 3 - PROJECT MANAGER QUALIFICATIONS

Overview

There are specific PM qualification standards required and desired, for each Commonwealth IT project category. Project categories include: Non-major projects costing less than \$100,000; Non-major IT Projects with a total cost greater than or equal to \$100,000 and less than \$1 million; and, Major IT Projects. In the Commonwealth of Virginia, Major IT Projects are information technology projects that: are mission critical; have statewide application; or, have a total estimated cost of more than \$1 million. Desired qualifications can be waived by the appropriate decision making authority. For a Major IT Project, the project sponsor will qualify the project manager, the Commonwealth of Virginia Chief Information Officer will review the qualification and approve the selection of the project manager. For a Non-major IT Project, the project sponsor will qualify and approve the project manager.

Qualification Standard for Non-major IT Projects with a total cost less than \$100,000

Required:

A project manager will have satisfactorily passed the Core Processes test and completed Commonwealth overview training.

A project manager will have 1500 hours of successful project team experience. Project team experience includes any position on a project team.

A project manager will have demonstrated team building and leadership potential.

Desired:

A project manager will have experience or special qualifications in an applicable functional or technical field.

A project manager will have an Associates Degree in an appropriate management or technology discipline.

Qualification Standard for Non-major IT Projects with a total cost greater than or equal to \$100,000 and less than \$1 Million.

Required:

A project manager will have satisfactorily passed the Core and Facilitating Processes tests and completed the Commonwealth Overview training.

DRAFT

A project manager will have 2,000 hours of successful project management experience as a member of the management team on a Major or Non-major IT Project or as a project manager on a Non-major IT Project. Membership on the management team means that the project manager has served in a position of authority and directly participated in the management of a project. Examples of management team positions include, but are not limited to: Functional Team Lead; Technical Lead; Business Analyst; Testing Lead; and, Assistant Project Manager.

A project manager will have demonstrated team building and leadership skills.

Desired:

A project manager will have experience or special qualifications in an applicable functional or technical field.

A project manager will have a Bachelors Degree in an appropriate management or technology discipline.

Qualification Standard for Major IT Projects

Required:

A project manager will have satisfactorily passed the Core and Facilitating Processes tests and completed the Commonwealth overview training.

A project manager will have 4,500 hours of successful project management experience as a member of the management team or as a project manager on multiple Major or Non-major IT Projects. Membership on the management team means that the project manager has served in a position of authority and directly participated in the management of project. Examples of management team positions include, but are not limited to: Functional Team Lead; Technical Lead; Business Analyst; Testing Lead; and, Assistant Project Manager.

A project manager will have successfully performed as the project manager for at least one project with a total cost over \$100K.

Desired:

A project manager will have completed advanced training in project management.

A project manager will have experience or special qualifications in an applicable functional or technical field.

A project manager will have a Bachelors Degree in an appropriate management or technology discipline.

DRAFT

SECTION 4 - PROJECT MANAGER MENTORING PROGRAM

Overview

The purpose of the project manager mentoring program is to provide less experienced project managers with a more experienced advisor who can provide guidance, advice, or direction. The Project Manager Mentoring Program provides an opportunity for professional development outside of a formal classroom setting. Virginia Information Technologies Agency will manage and administer this voluntary program.

Virginia Information Technologies Agency Responsibilities

The Virginia Information Technologies Agency will establish the voluntary mentoring program; solicit volunteers through a formal application process; and, identify and publish the names of appropriately qualified mentors for project managers to contact.

Project Mentor Qualifications

Major project mentors will have substantial project management experience and have met Commonwealth of Virginia project manager qualification standards for Major IT Projects as outlined in Section 3. The mentor will have successfully managed at least one major project. A project mentor will have demonstrated:

- Substantial project management experience.
- Knowledge and use of project management methodology.
- Ability to manage projects in a cross-agency and statewide environment.
- Ability to blend creativity, problem solving, and technical skills to develop new systems approaches or seize opportunities that sustain business success.
- Ability to operate in complex management environments with multiple stakeholders.
- Experience in large-scale technology and applications projects, process improvement, and organizational change.
- Ability to conceptualize creative solutions.
- Skill in management and facilitation of meetings.
- A strong aptitude and detailed knowledge of multiple technical disciplines.
- A detailed understanding of business and financial systems.

DRAFT

SECTION 5 - PROJECT MANAGER QUALIFICATION AND SELECTION PROCESS

Overview

The process outlined below and in Figure 1 provides a roadmap for project managers to meet the qualification standards for projects. Meeting qualification standards does not automatically qualify a project manager for a specific project or grouping of projects. Project managers are individually qualified for each project.

Qualification Process Description

Step 1. The project manager candidate registers in the program with the approval of their agency or private company. Registration enrolls the candidate in the program (not in training). Registration will be accomplished online through the Project Manager Development Web page.

Step 2. The project manager candidate enrolls in and completes Part I of the basic project management training (Commonwealth Overview). This step may be completed before or after Step 3.

Step 3 The project manager candidate takes and passes Core and Facilitating Processes tests, and/or attends training as needed and then takes the appropriate test. This is a repetitive step. Project manager candidates may take only the Core Processes test in order to qualify for projects that cost less than \$100,000. However, a project manager candidate must pass both tests to manage any project costing \$100,000 or more. This step may be completed before or after Step 2.

Step 4. The project manager candidate completes minimum experience requirements. Step 4 can be performed before, during, and after steps 1 through 3.

Step 5. The project manager candidate updates their qualification record with training completed, experience, or education as appropriate. Project managers should routinely update the qualification record as they complete additional training and education or acquire additional experience.

Step 6. The agency or private company verifies the experience and training indicated by the candidate on the completed qualification record.

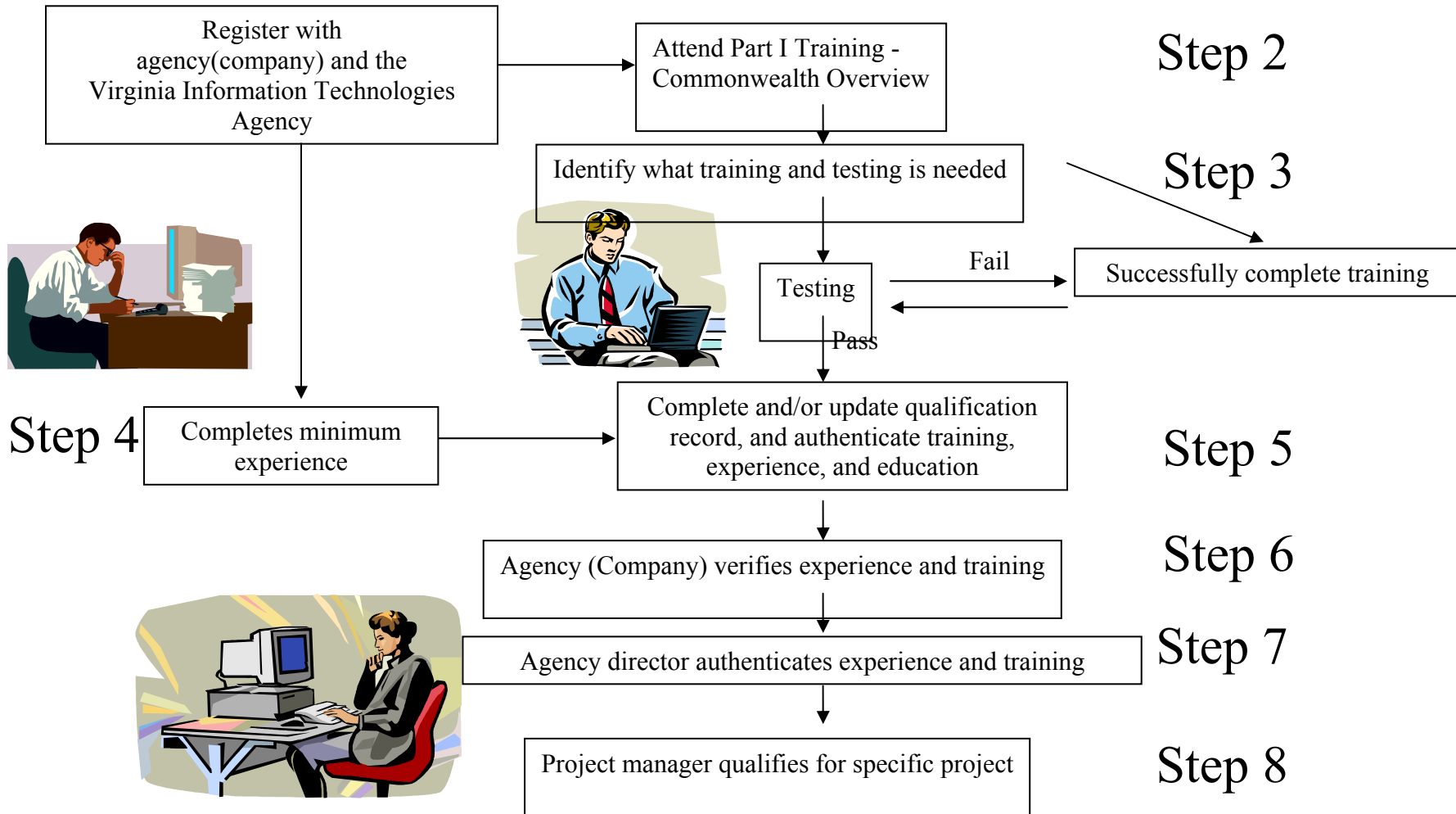
Step 7. The agency director or authorized company representative authenticates the agency or private company verification of experience and training.

DRAFT

Step 8. The project sponsor uses the project manager's application to qualify the individual for specific project assignments.

➤For a major project, the project sponsor will qualify the project manager, the Commonwealth of Virginia Chief Information Officer will review and approve the selected project manager.

➤For a non-major project, the sponsor will qualify and approve the project manager.

DRAFT**Step 1**

Project Manager Training and Selection Process
Figure 1.

DRAFT

SECTION 6 - PROJECT MANAGER SELECTION AND TRAINING STANDARD IMPLEMENTATION SCHEDULE

The implementation of this standard will be phased over a 21 month period, beginning August 2003 with full implementation in May 2005. This standard is being implemented in phases to ensure adequate resources and opportunities are available for project managers and ongoing projects are not negatively impacted. The implementation schedule allows projects to receive a waiver of 6 months from the Chief Information Officer or project sponsor. The Chief Information Officer or project sponsor must document the decision to waive a project in a memorandum to the Project Management Division of VITA.

Publish Standard.....	August 2003
Project Manager Development Web Page Operational.....	August 2003
Qualification Testing Begins	September 2003
Commonwealth Overview Training Available.....	October 2003
Standard Effective for New Major Projects.....	February 2004
Standard Effective for New Non Major Projects.....	May 2004
Standard Effective for Old Major Projects.....	August 2004
Project may be waived for 6 months	
Standard Effective for Old Non Major Projects.....	November 2004
Project may be waived for 6 months	
Standard Enforced without exception.....	May 2005